



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/597,199

07/14/2006

Karsten Buse

20811/0204481-US0

7625

7278

7590

01/21/2010

DARBY & DARBY P.C.

P.O. BOX 770

Church Street Station

New York, NY 10008-0770

EXAMINER

RAO, G NAGESH

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

01/21/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/597,199	Applicant(s) BUSE ET AL.	
	Examiner G. NAGESH RAO	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-22 is/are pending in the application.
- 4a) Of the above claim(s) 22 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17-19 is/are allowed.
- 6) ☒ Claim(s) 12-16, 20 and 21 is/are rejected.
- 7) ☒ Claim(s) 17-19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1) Claim 22 is withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 11/12/09.

Applicant's election without traverse of claims 12-21 in the reply filed on 11/12/09 is acknowledged.

Response to Arguments

2) Applicant's arguments with respect to claims 12-21 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

3) Claim 15 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not contain any values that would correspond with

Art Unit: 1792

the $1 \times 10^{25} \text{m}^{-3}$ concentration for the amount of doping elements in the crystalline material.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the

contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4) Claims 12-16, and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stoll (US Patent No. 6,652,780) in view of Buse (US Pg Pub. 2006/0291519).

Stoll 780 pertains to the process of oxidizing iron-doped lithium niobate. Examiner does notate that this reference was applied previously in the office action of 1/24/08.

Upon review it is the examiner's position that Stoll 780 actually reads on from an inherent but as well intuitive standpoint on the claimed invention. Stoll does disclose a method of treating the iron-doped lithium niobate crystal whereby the inherently understood initial step is taking a lithium niobate crystal and doping it with Iron (See Col 2 Lines 1-9). Thereafter protonation of the iron-doped crystal occurs (which is a form on ionized doping) after which the material is placed in a process chamber for oxidation which would inherently in turn "liberate the electrons" via conversion of the Iron atoms (i.e. foreign) to a lower valence state, as well

subjected to an electric field during heating and oxidation which would inherently result in the reduction of the optical absorption value (See Col 2 Lines 11-49).

Stoll 780 appears to disclose the necessary application of steps for processing the doped lithium niobate crystal. The difference being the application of the external current source during the oxidation process, which is done initially but then as well at the final steps (Col 5 Lines 7-25).

In the same field of endeavor, Buse 519 (Which is a US Pg Pub equivalence to the DE 10 300 080 Reference incorporated into applicant's specification) does disclose the process of lithium niobate and tantalite material being enhanced by doping, heating, exposing to ion rich atmosphere (i.e. Oxygen) and application of electrical field (See Abstract, Section 0022-0023 and 0030).

This would also be seen as a resultant effective variable step and ascertained via the known teachings and understanding of the science at the time of the present invention. Thus the steps of oxidation and applying of the electric field source concurrently would be obvious to one having ordinary skill in the art at the time of the present invention for the mere ability to reduce and as well optimize processing times of the crystalline material as can be understood by the combination of Stoll 780 and Buse 519.

From the aforementioned Stoll 780 discloses a means for processing Iron doped Lithium Niobate crystalline material.

However Stoll 780 does not disclose (as ascertained by applicant's specification) a concentration for the doping material falling within $1 \times 10^{25} \text{ m}^{-3}$ range or more.

In the same field of endeavor, Buse 519 clearly discloses a similar value for a lithium niobate or tantalite crystalline structure in correspondence to the Iron concentration values in the crystalline material (See Section 0022-0023, 0029).

This step would allow for the benefit of helping aid the crystal from optical damage and optimizing its better use (Section 0036). Thus being obvious to one having ordinary skill in the art at the time of the present invention to modify Stoll 780 with that of Buse 519 in order to facilitate optimal processing conditions.

Allowable Subject Matter

5) The following is a statement of reasons for the indication of allowable subject matter: Claims 17-19 refer to limitations regarding the use of electrodes and specifically corona electrode when applying the electrical current source onto the crystalline material, specifically enabling the

reduction of optical absorption values in lithium niobate or tantalite crystal structures.

Claims 17-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6) The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please See PTO 892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to G. NAGESH RAO whose telephone number is (571)272-2946. The examiner can normally be reached on 8:30AM-5PM (INDEPENDENT FLEX SCHEDULE).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael KORNAKOV can be reached on (571)272-1303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/G. Nagesh Rao/
GAU-1792
Patent Examiner

